

D-O LRT and Duke: A Brief History

Erwin Road: There from the Beginning

US 15-501 Phase II Major Investment Study (December 2001)

Duke University has been involved in planning for light rail and other forms of rail transit in Durham for almost 20 years. Project Alternative Development actually began at Duke in the fall of 2000 when Duke hosted a series of Station Area Planning workshops to begin initial screening and reviewing of concepts. Ten Build Alternatives were selected for further refinement and evaluation by the Project Technical Committee and Policy Oversight Committee. Public input was solicited throughout the development of the concepts with two series of public workshops held both in Durham and in Chapel Hill in September 2000 and January 2001. The evaluation of Build Alternatives included engineering concept drawings, travel demand projections, capital and operating cost estimates, and identification of environmental and community impacts. While other alternatives were considered, the US 15-501 Phase II Major Investment Study published in December 2001 notes that the consensus of the Policy Oversight and Technical Committees was that the benefits of a transit corridor along Erwin Road, which directly serves the University and Duke Medical Center, made Erwin Road an important part of the preferred path for transit in the region.

GoTriangle's incorporation of feedback from Duke goes back at least as far as the Phase II Major Investment Study. Phase I of the Major Investment Study had determined that the 9th Street Station would be the connection point between the proposed Regional Rail System and the Phase II Build Alternatives. The study notes that "at the request of Duke University, an additional detailed comparative analysis was performed to consider alternate sites within the study's project area for a transfer between alternative technologies" (Phase II MIS, VII-1). GoTriangle, then Triangle Transit Authority, accommodated Duke's requests, just as the agency has over the past 20 years. These efforts to work with Duke have cost Durham residents millions of dollars in taxes and fees. Back when the Phase II Major Investment Study was completed, the study's Technical Committee included a representative appointed by Duke University, and the Policy Oversight Committee included the Duke University President and Executive Vice President, Tallman Trask. Trask represented Duke at Policy Oversight Committee meetings on 8/1/2000, 9/22/2000, 10/27/2000, 11/29/2000, 1/12/2001, 4/27/2001, and 6/29/2001. Here are some notes of interest from Policy Oversight Committee meetings attended by Dr. Trask:

November 29, 2000 - "Dr. Trask told the POC that Duke accepts leaving the Erwin Road baseline option on the map for now and Mr. Ritchey (TTA General Manager) clarified that TTA understands that use of an Erwin Road alignment would be acceptable to Duke if it is at grade and does not include an elevated structure."

January 12, 2001 - "By consensus the POC agreed that the Duke "baseline" alternative, a DMU at grade in the right-of-way on Erwin Road, should continue to be studied."

Our Transit Future: Still on Erwin

Alternatives Analysis and Scoping (April - September 2012)

Over a decade passed since Phase II of the US 15-501 Major Investment Study, and Erwin Road remained the preferred path for transit investment. A final report identifying the scope of the Durham-Orange Light Rail Transit Project was published in September 2012 but not before years of conversation and tribulation regarding transit investments in the corridor. One of the biggest challenges for these investments was funding. The focus of state transportation funding has been and remains roads and highways. But in 2009, the North Carolina General Assembly passed House Bill 148 allowing County Commissioners in Durham, Orange, and Wake Counties to establish local funding for transit projects through a half-cent sales tax, subject to referenda. On November 8, 2011 Durham County residents voted in favor of a half-cent sales tax dedicated to transit, and Orange County voters approved their tax in 2012.

Beginning in March 2010, the rail transit corridors in the 2035 Long Range Transportation Plan were analyzed to determine the most appropriate initial major transit investments. As a result, the D-O Corridor was identified as a priority transit corridor to be evaluated in greater detail through an Alternatives Analysis, the first step in the Federal Transit Administration's (FTA) Project Planning and Development process for federally funded transit investments. The Alternatives Analysis concluded by identifying a locally preferred alternative, the most promising alternative for further analysis. It identified light rail as type of transit investment best suited for the corridor, and on February 8, 2012, the Durham Chapel Hill Carrboro Metropolitan Planning Organization unanimously adopted light rail for further study through preliminary engineering and environmental analysis, as required by FTA and the National Environmental Protection Act (NEPA).

In preparation for preliminary engineering, various rights of way were preserved along the identified transit corridor. Through the formal adoption of development plans, twenty feet of right-of-way was dedicated near Hock Office Tower on Erwin Road, and an additional 20 feet was dedicated as part of the Crosland Development just east of Downing St where Trinity Commons is today.

Through Scoping and Alternatives Analysis, decisions were made that the chosen light rail alignment would include Erwin Road. The only question that remained at the time was where to put the Duke/VA Hospitals Station.

[Duke Meeting Summary - September 12, 2013](#)

Duke Attendees: Tallman Trask, Monte Brown, Greg Warwick, Phial Wynn, Sam Veraldi

"Dr. Trask presented a strong case for Duke's preference for the station to be located between Trent Dr. And Flowers Dr."

Trask argued that "the main entrance to the medical facility is now off of Trent Dr. Duke is creating a "pedestrian greenway" along the old rail corridor that parallels Trent Dr. and provides good access to the Duke facilities to the south of the Medical Center. There are no viable pedestrian connections from the proposed Eye Care Center Station to the Duke Facilities and offices to the south of the Medical Center. The distance from the Trent Dr. Station to the new entrance of Duke Hospital is about the same as the distance from the VA Medical Center to the Trent Dr. Station."

"Triangle Transit had pointed out a possible pedestrian overpass to connect the VAMC and Duke Medical Center which could provide access to the LRT station. Triangle Transit should consider the pedestrian

connection that Duke is working out with the VAMC is a separate project and not affiliated for use by the LRT system.”

Duke Meeting Summary - May 29, 2014

Duke Attendees: Greg Warwick

“Greg W. requested that the widening of Erwin Road attempt to preserve the proposed new construction of the entrance to the Eye Care Center. Greg W. will send Tom [Hepler, GoTriangle’s Consultant] the electronic files of the proposed entrance and building so they can accurately be incorporated into the preliminary LRT drawings. Tom will consequently send Greg W. the adjusted plans reflecting the widening of Erwin Road.”

Duke Meeting Summary - October 21, 2014

Duke Attendees: Kyle Cavanaugh, Tallman Trask, Greg Warwick, Phail Wynn

“The LRT alignment encroaches into the parking area north of the Smith Warehouse west of Buchanan Blvd. Tallman noted that Duke University leases this property from NCRR, so encroachment into the parking area would need to be discussed with NCRR and Duke University at a later date. He also indicated that the parking lot has two access points.”

“Tallman did not object to any of the locations along Erwin Rd where the LRT project encroaches into Duke University property. It is understood that there will be right-of-way negotiations in the future.”

“Tallman noted that there may be special enhancements to the security adjacent to the Global Research Center along Erwin Rd due to the sensitive nature of the government work done within that facility. Greg W. will send TTA the required minimum distance from the building to the curb line along Erwin Rd, and any special enhancements that will be required.”

“Tallman noted that the proposed station at Buchanan Blvd is somewhat isolated, but he recognized the redevelopment potential of the Duke University-owned property surrounding the site and found favor with the station location.”

Duke Meeting Summary - January 23, 2015

Duke Attendees: Kyle Cavanaugh, Tallman Trask, Monte Brown, Scott Selig, Greg Warwick

“Dave described the alignment shift at Smith Warehouse. Tallman indicated that if necessary, the University would be willing to modify the building to provide more space adjacent to Buchanan Blvd. Katharine indicated that the building is a national and/or local historic register building and as such FTA would not allow the building to be modified as part of the project.”

“Scott proposed an alignment that would run immediately south of and parallel to Maxwell, cross through the north edge of the Cary Lumber building and through the north edge of the proposed Wexford parking garage site. Scott and Tallman indicated that they would direct Wexford to revise their proposed garage in order to provide space for the LRT alignment.”

“Monte also asked about the lake being built on Duke University property near Morreene Road. Greg indicated that he had sent plans to Tom Hepler; Dave and Katharine indicated that it was their understanding that there are no outstanding issues along Erwin.”

“There was a brief discussion of the reasons for median running rather than side running operations on Erwin Road. Tallman indicated that the University would consider providing land south of Erwin for the LRT guideway. Dave and Katharine described the constraints east of LaSalle.”

Duke Meeting Summary - February 16, 2015

Duke Attendees: _____

“David King and Deborah Ross introduced the meeting; Deborah explained that the intent of the meeting was to share the anticipated property impacts of the D-O LRT to Duke University. Triangle Transit is seeking an order of magnitude estimate for the costs of property and is interested in working with Duke to develop that estimate over the next few months.”

“Tallman noted that the tree buffer surrounding the golf course is very important, and that it is a priority of the university to maintain pristine views from the course. He noted that Duke had considered selling property adjacent to the golf course in the past but chose not to in order to preserve the views and character.”

“Tallman noted that TTA should investigate any potential issues regarding transit service adjacent to the medical/disease research building near the corner of Erwin Road and Research Drive. Triangle Transit plans currently meet requirements provided by Greg Warwick for minimum distance from the building to the nearest roadway lane – Triangle Transit will follow up to determine whether there are any other requirements (fencing, walls, etc.).”

“Tallman noted that although Duke has expressed formal preference for the Trent/Flowers location, they would not be opposed to the Eye Care Center location if that location moves forward.”

“Tallman noted that the Cary Lumber Building has historic character and should be saved if possible. He urged TTA to investigate the possibility of running the tracks through the middle of the building and leaving the two ends intact.”

“Tallman noted that it is his understanding that Wexford considers the Morgan site (between Wilkerson and Gregson) to be the third-best option out of five for parking the Chesterfield, and that the first two better options were not able to be implemented. He explained that the University is willing to discuss a swap of the Buchanan transit garage property for the TTA triangle parcel; however, he noted that he would only be interested in the triangle parcel for the purposes of selling it to Wexford for the Chesterfield parking garage. He noted that the University would not have any other use for the triangle parcel, and expressed skepticism that the triangle parcel would accommodate an efficient parking garage due to its layout and size.”

“Dave explained that the plans shown at the meeting depict the approximate limits of disturbance of the project, and that the anticipated right-of-way needs would be less than the area depicted. He noted that

preliminary right-of-way plans will be available within a few weeks. Kyle agreed that when the right-of-way plans are available, his staff can begin evaluating the high-level potential right-of-way costs.”

Duke Meeting Summary - March 18, 2015

Duke University Attendee: Bill Jordan

Duke Energy Attendee: Ken McDonald

This was a joint meeting between Duke University and Duke Energy regarding the 44kv power line.

“[GoTriangle Consultant] Oriana Hernandez briefly reviewed the previous field meeting and noted that, while it may be complicated and expensive, the conclusion is that Duke Energy’s underground 44kV line can be relocated. Ken McDonald agreed that it was technically feasible, but noted there are other non-technical issues involved.”

“Oriana Hernandez acknowledged receipt of email from Ken McDonald providing Duke Energy’s order of magnitude cost estimate of \$20 million for the relocation of the 44kV underground transmission line facilities. Ken McDonald explained that the \$20 million is the worst case and includes 15% contingency. The 44kV line can be replaced with dielectric cable, which is newer technology that allows tighter radius bends.”

“Bill Jordan noted that the existing 44kV line serves 5 campus and hospital substations via two loops. He stated that the new transmission system will have to be in place and fully operational before the existing system is removed. He noted that scheduling the outage for the switchover will be difficult because it will have to occur all at once in a short timeframe.”

“Bill Jordan stated that the tree buffer is a concern for Duke University, and it will be scrutinized by various departments.”

“Bill Jordan asked if any thought had been given to increasing the elevation of the LRT tracks. Tom Hepler responded that the elevation of the tracks and roadways could be explored but explained that a decision cannot be made today or during the EIS phase of the LRT project.”

Environmental Analysis: Duke Prefers Stations on Erwin

Draft Environmental Impact Statement (August 2015)

On January 12, 2015, Tallman Trask submitted the following letter to David King, General Manager of Triangle Transit Agency:

“Dear David:

We appreciate the collaboration between Duke University and Triangle Transit in planning the Durham-Orange Light Rail Transit Project.

You have asked for our preferred alternative for the Duke/VA Medical Center LRT Station. We strongly prefer the Trent-Flowers alternative as it is more consistent with the university’s Master Plan. Locating the station platform between Trent and Flowers Drive will reinforce the Campus gateway off of Erwin

Road. Also, its proximity to the North-South Greenway will complement and strengthen bicycle and pedestrian connections between the Medical Center, West and Central Campus.

We support the addition of the roundabout at Elba Street as it should enhance traffic circulation and ease some of the congestion in front of the entrance to the Medical Center at Fulton Street. Further, we believe the Lasalle Station on Erwin Road and the Buchanan Boulevard Station near East Campus will benefit the Duke community.

We look forward to our continuing partnership with Triangle Transit.”

The location of the Duke/VA Medical Centers Station was one of five key decisions that needed to be made prior to the recommendation of the National Environmental Protection Act (NEPA) preferred alternative in the Draft Environmental Impact Statement (DEIS). In addition to the January 2015 letter, Triangle Transit Agency conducted significant public involvement and stakeholder engagement leading up to the publication of the NEPA preferred alternative in the DEIS. Triangle Transit also met regularly with steering, technical, and communications advisory committees, all of which included representatives from Duke. Phail Wynn Jr., Vice President for Durham and Regional Affairs, represented Duke on the Steering Committee. Melissa Harden, Interim Director of Parking and Transportation Services, Alison Carpenter, Transit Planner and TDM Program Manager, and Mark Hough, Campus Landscape Architect, represented Duke on the Technical Committee. Leanora Minai, Director of Communications, represented Duke on the Communications Committee. Despite active participation from UNC and NCCU, Duke attendance at meetings was rare. In addition to advisory committee meetings, Triangle Transit met directly with representatives from Duke roughly ten times between 2013 and publication of the DEIS.

The DEIS was published for public comment in August of 2015. The NEPA preferred alternative was the culmination of more than a decade of discussion, which had always included Erwin Road as a key part of the transit corridor. Well over 1000 comments were received on the DEIS during the 45-day public comment period. No comments were received from Duke University on the DEIS or any subsequent Supplemental Environmental Assessments. FTA issued a Record of Decision (ROD), including the Erwin Road portion of the Light Rail alignment, on February 11, 2016. The ROD defined the Light Rail Project, and it set the stage for entry into the New Starts Engineering phase of the FTA’s Capital Investment Grants program. Despite struggles with the North Carolina General Assembly and State funding, the Light Rail Project remained on track for a federal investment of over a billion dollars.

Duke Coordination since the ROD

Duke Meeting Summaries (2016 to Present)

After over 15 years of public discussion, a 7,000-page DEIS with over 1,000 public comments, and a Record of Decision from the FTA, all of which included Erwin Road as a key element of the transit corridor, coordination meetings with Duke began to reveal bizarre contradictions, complications, and a general dissatisfaction with the Light Rail alignment on Erwin Road. Despite good faith efforts to address the various concerns that have been expressed, GoTriangle has been unable to secure Duke’s unequivocal approval. The following is a near comprehensive timeline of all Duke meeting summaries available from 2016 to the present. A small number of meeting summaries have been excluded from this list due to the technical nature of the particular discussion. All meeting summaries that list Tallman Trask as an attendee have been included.

March 7, 2016

Duke Attendees: Scott Selig, Cash Davidson, Ryan Lavinder

Martin Deng of STV had a relocation options matrix for a 30" water line installed in 1965 within NCDOT right-of-way along 15-501 near the Duke golf course. The purpose of the meeting was to get feedback on which option was preferable. Duke's Cash Davidson focused on impacts to trees near the water line. Scott Selig stated that Option 2 is "clearly the best option" and that "Duke University should be able to provide the required easement at minimum cost" and Duke "will have internal meetings to confirm." Cash and Ryan Lavender agreed with Scott. Cash once again emphasized that the real concern was tree removal.

June 8, 2016

Duke Attendees: Monte Brown, Scott Selig

"In addition to moving the traction power substation to the south side of Erwin Rd, can the LRT alignment and roadway be shifted southwards (farther into the Campus? Shifting the alignment and giving up trees would be preferable to impacting their proposed development (Lenox Baker Pediatric Rehab Center)."

"Duke agreed to provide GoTriangle with CAD files of the proposed Lenox Baker Pediatric Rehab Center."

Duke emphasized that the two areas of greatest concern are impacts to the 44 kv line beneath Erwin Road and maintaining access on Emergency Drive.

July 22, 2016

Duke Attendees: Monte Brown, Ryan Lavinder, Scott Selig

As was the case in the June 8th meeting, Dr. Brown continues to show disinterest in coordination until all funding for the project has been secured.

Scott Selig noted that "Duke University has no plans for further development in this area (Documentary Studies Building), and that the D-O LRT aerial structure piers pose no impacts to the building or its functions."

Monte Brown followed up on this meeting with an email on July 28, 2016, which clearly demonstrates his position regarding ongoing coordination. Dr. Brown is clearly more interested in arguing about the viability of the Project than he is in design coordination issues. However, Dr. Brown also emphasized the importance of access to the trauma center via Emergency Drive.

September 12, 2016

Duke Attendees: Scott Selig

Scott expressed concern “about the relocation of the bus operations and maintenance facility, which will require property, more time, coordination with their bus system, etc.”

Scott indicated that technical discussions about the 44kv should take place after the Project enters the engineering phase.

Note: Duke agreed to provide GoTriangle with CAD files of the proposed Lenox Baker Pediatric Rehab Center at the June 8, 2016 meeting. This meeting summary (9/12/16) notes that “Monte Brown will be asked to provide the CAD files for the proposed Lenox Baker Pediatric Rehabilitation Building - in approximately six months.”

August 29, 2017

This was a meeting with Duke Lemur Center. There were no attendees from Duke University or Duke Health. The main purpose of the meeting was to coordinate the City of Durham’s request for a multi-use path between Cornwallis Rd and Cameron Blvd with staff from Duke Forest and the Lemur Center. The path is “an identified City trail connection in the adopted trails plan and links to a City priority trail project that begins at Cornwallis Road heading south to Pickett Road.” As of the date of the meeting summary, “the City is pursuing federal funding for the piece south of Cornwallis Road.”

After the meeting, GoTriangle received information from Scott Selig that he and Tallman Trask had never approved a multi-use path in this location.

September 8, 2017

Duke Attendees: Scott Selig, Russell Thompson, Jeff Potter

“Scott shared that he has received calls regarding test borings that were taking place and was not aware of the borings. He therefore wanted to get the appropriate agreements in place before any more survey, borings, or other field investigation is completed.

GoTriangle responded that they previously had been coordinating through Tallman Trask, and had been told to follow a certain process through Russell’s group that they have been following. Borings were approved through the weekly utilities meeting and 22 have been completed to date. All borings have since been put on hold, however, given Scott’s direction.”

Regarding the previously discussed multi-use path in the City’s trails plan, “Scott expressed that no additional coordination or work should be done on this proposed trail until a higher level discussion takes place between Duke and the City of Durham.” GoTriangle agreed not to advance plans for the multi-use path until direction had been provided from Duke.

“Russell indicated that he remains concerned about the 44 kv power lines and a water line in Erwin Rd, and has not yet seen a solution that is acceptable.”

“Dave will coordinate with Sharon to set up monthly coordination meetings including Scott, Monte, and Russell.”

November 17, 2017 (Erwin Road Partnership)

The Erwin Road Partnership was developed to navigate competing interests of Duke University and the Durham VA Medical Center.

Duke Attendees: Monte Brown, Matthew Prestwood, Meg Richards, Scott Selig, Russell Thompson, Tallman Trask, Paul Vick

VA Attendees: Kevin Amick, Peter Favret, Dan Fields, Dawn hart, Kimra Smith, Chuck Williams

This meeting summary refers to a presentation: "0203B_PRES_Duke-Presentation-171117_Final."

This was the first time that an aerial Erwin Rd alternative had been presented to Duke and the VA.

"Officials representing the university, medical center, and Durham VA characterized their concerns with the at-grade median-running option as insurmountable. The stakeholders' concerns as presented by GoTriangle included:

- a. Impacts to the 44kV electrical transmission line along Erwin Road
- b. Other utility relocation requirements
- c. Emergency vehicle access to the hospitals
- d. The amount of widening required on Erwin Road to accommodate the median-running at-grade light rail tracks
- e. Traffic impacts along Erwin Road and the intersecting streets"

"All three entities expressed openness to finding a workable solution closely based on the aerial median-running alternative presented in the meeting."

"Duke medical center and Durham VA officials noted concerns with pedestrian flows and access from the aerial station between Trent and Flowers Drives to their facilities. Both expressed interest in evaluating station location options near Eye Care Center Drive that would improve pedestrian, patron, and personnel access to the hospitals."

"Durham VA officials expressed concerns with losing any parking at all."

"Duke medical center officials expressed concerns with assuming protection of VA parking as a given, noting that the south side of Erwin Road between Eye Care Center Drive and Fulton Street is very tight."

November 29, 2017

Duke Attendees: Scott Selig, Russell Thompson, Jeff Potter, Monte Brown

This was the meeting at which trees became the primary concern, given that emergency access concerns were supposedly addressed by elevating the alignment along Erwin Road.

The right of entry agreement for field work mentioned in the 9/8/2017 meeting summary has been executed as of this meeting summary.

“Tree preservation is a priority to Duke University. Jeff Potter presented the ‘Wood Use Form’ as a step in the process for GoTriangle to complete during field survey/exploration and construction. GoTriangle will need to coordinate with Duke University staff regarding any proposed disturbance to landscaping, especially trees greater than 6” in diameter, prior to performing work in vegetated areas. Duke University will appoint a Project Manager to serve as Point of Contact (POC) going forward.”

“At the Global Health building, the concern of Duke University is not just the proximity to the alignment but also the loss of a barrier, including trees, between the building and roadway. Monte Brown is working on obtaining the info to confirm the security requirements at this facility. GoTriangle will show how much of the existing tree buffer we expect will need to be removed in this area with the proposed alignment, but there was no agreement that any trees could be removed or that this was an acceptable alignment. Duke University requested that the light rail alignment remain off Duke University property from west of LaSalle Street heading east at a minimum, but possibly all the way down Erwin Road based on the impact to the Duke Forest protected trees.”

Duke noted that it does not approve of the multi-use path included in the City’s trails plan. “Monte Brown noted that the inclusion [of the multi-use path] on recent plans was unexpected as it had not been discussed during previous meetings.”

This was the first meeting summary that included significant discussion of noise, vibration and EMI. GoTriangle requested a list of all sensitive buildings and equipment so that a study could determine if impacts were possible, and if so where they were possible. Duke questioned why a vibration study was needed and asked if the vibration from light rail would be worse than the vibration already being encountered as a result of trucks and buses on Erwin Rd.

Duke noted a concern regarding the effects of EMI on proton therapy equipment and asked if mitigation measures would be considered if needed.

Monte Brown expressed that the circular drives at the Eye Care Center and Duke Hospital North cannot be shortened, and he reiterated a preference for a station between the Eye Care Center and the VA Medical Center.

“Duke University would prefer that emergency access shoulders are provided on inbound approach routes to Emergency Drive only, if at all.”

“The VA is interested in keeping all 40+ parking spaces along Erwin Road. Duke University committed to work with VA to address their parking impacts based on the refined alignment.”

“Duke University questioned the need for this station [Buchanan Blvd]. GoTriangle stated that it was included as a priority commitment to an affordable housing non-profit organization and includes ridership from various neighborhoods and retail areas north and south of NC 147. Duke University suggested that the project team should reevaluate the population that this would serve as the neighborhoods in this location have changed significantly over time. Duke University is interested in retaining ownership of some or all of the remnant property [near the Buchanan Blvd Station], particularly the north side.”

December 19, 2017 (Erwin Road Partnership)

Duke Attendees: Tallman Trask, Scott Selig, Monte Brown, Russell Thompson, Paul Vick, Meg Richards

VA Attendees: Chuck Williams, Peter Favret, Chris Hastings

"[GoTriangle's Consultant] Doug Jackson (HDR) briefly reviewed the issues identified at the 11/17/17 Partnership meeting:

- a. Limits of the aerial alignment.
- b. Balancing impacts where the D-O LRT passes between the Duke and VA hospitals.
- c. Emergency vehicle access.
- d. Avoiding impacts to the 44kV transmission line.
- e. Traction power substation (TPSS) locations.
- f. Station locations."

"D. Jackson explained that by adjusting the traffic signal phasing and widening some pavement, more southbound through movements can be accommodated on Cameron Blvd. This improves the intersection, including the LRT at-grade crossing, above its current level of service (LOS) D."

"M. Brown asked if the roadway was being widened at the NIH building. D. Jackson indicated that Erwin Road and the multi-use path will be widened approx. 25 feet to the south, toward the NIH building. M. Brown indicated there is a concern with increased noise levels at the NIH building affecting research involving animals."

"D. Jackson indicated the LRT bridge will span over the 44kV line as it enters the median with 5-foot minimum clearance from the edge of the bridge foundation to the edge of the 44kV line. The same approach will be used at the structure foundations for the Eye Care Center station."

"D. Jackson explained that the emergency vehicle lanes that had been included in the previous design have been eliminated to narrow the overall width of the section. D. Jackson indicated that emergency vehicle preemption technology would be pursued. Transponders in the emergency vehicles would trip the traffic signals to allow freer flow of emergency vehicles through the signalized intersections. M. Brown indicated Duke University is open to pursuing the technology, but requested examples and contact information for where it has been used in North Carolina. He also expressed concern with more remote ambulance services that may be coming to the hospital, but noted these are usually just transport situations because acute cases arrive via life-flight."

"M. Brown said Duke University could work with the pedestrian bridge in a plaza area south of Erwin Road. Duke University has intentionally not done anything in this area to allow flexibility in how pedestrian connections are made to the surrounding buildings. He noted this area sits up high on an embankment. M. Brown noted that Duke University wants the station just west of Fulton Street, provided it does not adversely affect the oval in front of the Duke University Hospital or the 44kV line."

"S. Selig indicated the design was an improvement and appeared reasonable. However, Duke University will need to see much more detail before signing off on the design. T. Trask indicated Duke University is not going to 'approve' the design. While Duke University generally agrees that the LRT needs to be elevated, many more details need to be worked out. He reiterated his preference for grade-separating

the LRT at Cameron Blvd. along the north side of Erwin Road, and LRT alignment to be along the north side of Erwin Road to avoid the 44kV line and issues at the pond.”

“T. Trask asked about the feasibility of the option to extend the elevated alignment west to Cameron Boulevard, putting aside cost; K. Eggleston responded that the option does not appear reasonable/feasible for various reasons, and that GoTriangle would not pursue that option.”

January 5, 2018

Duke Attendees: Scott Selig, Russell Thompson, Jeff Potter, Floyd Williams

“Floyd Williams with Duke University Facilities Management has been appointed Project Manager and will act as Point of Contact with GoTriangle on the Durham-Orange Light Rail Project.” This was the first time Duke had appointed a Project Coordination Manager for the Light Rail Project.

“Dave Charters noted that a general request of Duke University is to provide CAD files of future Duke University developments to incorporate into the final planning and design. Examples include the Lenox Baker Pediatric Center and parking deck at southeast quadrant at intersection of Flowers Drive and Erwin Road.”

Note that the Lenox Baker Pediatric Center CAD files were requested at the June 8, 2016 meeting, and Duke agreed at that meeting to provide them.

January 25, 2018 (Erwin Road Partnership)

Duke Attendees: Tallman Trask, Scott Selig, Monte Brown, Russell Thompson, Paul Vick, Meg Richards

VA Attendees: Chris Hastings, Dan Fields, Peter Favret, Chuck Williams

“K. Eggleston indicated GoTriangle met with Duke Energy and confirmed the criteria of maintaining 15’ from the centerline of the existing underground 44kV line to the edge of the bridge footings. D. Jackson indicated the design has been refined to meet Duke Energy’s 15’ criteria.”

Further discussion occurred regarding noise and vibration:

“K. Eggleston indicated GoTriangle’s specialized consultant is beginning field work, including measurements at sensitive receptors. This includes evaluating the parameters previously provided by Duke University. M. Brown noted that in lieu of information on equipment location and functions, Duke University provided criteria to GoTriangle. This provides greater flexibility for future facilities. D. Jackson described the process of modeling and calibrating the existing conditions, followed by an analysis of the proposed D-O LRT facilities. Mitigation measures, if required, are then incorporated into the design.”

Note that GoTriangle requested a list of all sensitive buildings and equipment at the November 29, 2017 meeting.

Regarding the Buchanan Blvd Station area, “T. Trask and S. Selig concluded Duke University did not have an interest in retaining the triangular-shaped residual parcels at the Buchanan Station. K. Eggleston indicated GoTriangle will assume these parcels are full acquisitions.”

“In response to a question from K. Eggleston regarding selection of qualified appraisers for Duke University property, T. Trask indicated that GoTriangle should use a certified appraiser of its own choosing.”

February 26, 2018

Duke Attendees: Jeff Potter, Sadler Stowe, Jenna Schreiber, Floyd Williams, Russell Thompson, Scott Selig

The purpose of this meeting was to prepare Duke for review of the 50% design submittal, not including Erwin Road.

“The following dates were highlighted by Keith Ferguson as key deadlines of the review schedule:

- a. April 5 – Comments due to GoTriangle
- b. June 4 – GoTriangle distributes responses to 3rd Party comments
- c. June 5th to 11th – 3rd Party reviews and replies to responses
- d. June 12th to 18th – Conduct meetings with 3rd Parties to resolve any outstanding issues

“Scott Selig asked what happens if there still remain unresolved disagreements after conducting the resolution meeting? Dave Charters responded that some decisions to resolve disagreements may need to be elevated to the next level between Duke University and GoTriangle.”

April 9, 2018

Duke Attendees: Carl DePinto, Andrew Hinz, Floyd Williams, Paul Manning, Ryan Lavinder, Russell Thompson

The purpose of this meeting was to discuss Duke’s review of the design submittal for the portion of Duke-owned property east of Erwin Road, especially near the Buchanan Blvd Station.

June 15, 2018

Duke Attendees: Floyd Williams, Ryan Lavinder, Scott Selig, Carl DePinto, Cash Davidson

“GoTriangle presented the 30% design of Line Section 3A and requested Duke comments by July 10th. Duke staff expressed concerns with gathering comments by the 10th since staff and leadership are hard to get together during the summer. Floyd and Scott asked if comments could be provided on August 22nd. GoTriangle accepted that comments could be sent later, but that design has to progress to stay on schedule and many changes won’t be possible by that point.”

“GoTriangle confirmed that major alignment changes are no longer possible. Scott recommended communicating this to Dr. Trask.”

“The group discussed the Board of Trustees’ committee meeting where they heard about this design. This was the first time they heard about it. Dr. Trask said they raised the following concerns: tree removal, unattractiveness of the aerial structure, impacts to the Global Health Research Building, and the wall near the Duke Pond.”

June 28, 2018

Duke Attendees: Floyd Williams, Monte Brown, Russell Thompson, Cash Davidson

The purpose of this meeting was to discuss the Duke’s review of the design submittal for Erwin Road.

“Anne provided an overview of the Line Section 3A alignment and its design progression. Dave shared that the LS3A submittal is at a 30% design level because of the late change to the aerial alignment.”

GoTriangle followed up on a previous request for an NIH contact to coordinate any further mitigation needed at the Global health Research Building.

“Monte stated that he is the contact for this coordination. Monte said the requirement at the time the building was designed was 250 feet to a public ROW, and Duke had gotten a variance to locate 198’ from public ROW. Monte is in touch with NIH to find out if the requirements have changed and will let GoTriangle know what he finds out. He believes a Third Party Threat Assessment will be required and that NIH will have to review that Assessment and approve mitigation. He believes a blast wall will be required that would stop a truck that drives off the edge of Erwin Road from getting to the building.”

“[GoTriangle’s Consultant] Pete Lampi (HDR) stated that HDR has architects who have designed other NIH buildings at a similar or higher Biosecurity level and they never experienced the requirement to be 250’ from public ROW or provide a blast wall. They’ve indicated that we should work with the Safety and Security Officer for the building. Anne asked if Monte is the Safety and Security officer for the building. Monte said no, but that he wouldn’t waste staff’s time right now since the Board of Trustees will never approve the design because of tree impacts.”

“Monte stated that Duke was not aware of the change in the alignment west of LaSalle Street (from the center of the road to the southeast side of the road) and that the Board of Trustees will not approve a donation because of the tree impacts. Monte said that the alignment should be elevated along all of LS3A [Erwin Road] and over all crossings.”

Regarding the Duke/VA Medical Centers Station, “Monte stated that he did not ask for a plaza connection to the Station. Dave stated that this came out of previous coordination meetings with Monte. Monte said Duke only ever considered a pedestrian bridge from their Eye Research Institute to the VA, to meet the stairs and an elevator on the northeast corner of that building.

b. GoTriangle explained that the plaza shown was a placeholder and that GoTriangle understands Duke University will design and build the plaza if they want a plaza at the level of the Eye Research Institute. GoTriangle will adjust the vertical circulation to contain it within the ROW and provide landings at the plaza level if desired.”

“Monte asked how much the elevation of the Erwin Road alignment added to the project cost. Pete stated that LS3A is estimated to cost \$172 million. Dave responded that the change added \$80 – 100 million to the project.”

“Monte brought up vibration and noise impacts, specifically with regard to the Global Health Research Building. He previously sent criteria that must be met for the animals in that building. GoTriangle will revisit this criteria.”

August 6, 2018

Duke Attendees: Carl DePinto, Scott Selig, Greg Warwick, Andrew Hinz, Mark Hough, Floyd Williams

“Discussed Global Health Research Building. Greg Warwick thought the required offset was 150’ but wasn’t sure. GoTriangle will continue to request the specific requirements from Monte Brown.”

“Greg asked who will ride at LaSalle Street. Response – serving residential area north of Erwin. DHA access. Greg says people can walk to Med Centers Station. Mark believes there is value to have another station for campus access, since there is no easy way to central campus from the Medical Centers Station.”

August 23, 2018

Duke Attendees: Floyd Williams, Carl DePinto, Andrew Hinz

The purpose of this meeting was to discuss traffic concerns near Cameron Blvd.

Carl DePinto pointed out that we “can’t hold up people getting to work. Very tight discipline policy for being late. People have to be on time.”

“Carl’s specialty is large volume events. He was recruited to manage the first Thursday night special event at Duke.”

“Anne contended the design improves EB Erwin Road traffic. LOS/delay was found to be better with build condition than no-build condition.”

“Carl said if you can show him that the light rail replaces the need for the garage, he will be convinced on the design. Anne responded that the light rail increases capacity and access to campus, but will not reduce congestion. [GoTriangle’s Consultant] Nate says we can’t say light rail will reduce volume. It’s going to provide more options. Nate said if improvements on Cameron Boulevard are needed with or without this project, that’s a City/NCDOT concern. Carl’s concern is what to tell people who experience more delay because the train is coming through. His role is to get people in and out seamlessly.”

“They oversell garages 20%.”

“Carl said he has to represent the parkers and Duke community.”

“During events, Cameron Boulevard backs up to the second light beyond US 15/501. They double lane out of Towerview during events. Carl views that as an issue as well but is focused on the bigger issue. He will hear from Iron Dukes about delay on Towerview.”

September 11, 2018

Duke Attendees: Tallman Trask

This meeting is a follow up to a meeting held between elected officials and Vince Price.

“Dr. Trask suggested moving the alignment one block north to avoid these challenges. Duke owns a lot of northern land already. He also asked that it be elevated across Highway 751 and across Fulton Street. Elevation over Fulton Street deals with the issue of emergency access. Fulton Street is main access to hospital. They receive patients from 50 counties. There is a parking garage planned near 147 in the way of this suggested alignment, but they could give that up. GoTriangle explained the concern of locating the alignment in the Crest Street community, which is an EJ community.”

“Elevated median alignment is better than other alternatives they’ve seen. Issue is the design dominates the built environment. It’s visually dominant.”

“Trustees have concerns with the tree impacts on the south side. All the buildings on Erwin Road were built close to the road before the tree buffer was put into place. Katharine suggested that if this project doesn’t add capacity to Erwin Road, NCDOT may choose to widen the road. Dr. Trask responded that Duke would fight that widening.”

The Global Health Research Building was discussed again. Trask said that Duke believes we can comply, they just don’t know what was promised to NIH. They believe the agreement was 100’ offset, which the Project is providing.

Trask says that “Duke Loop is a big mess and operational issue.” Anne explained that “the design does not move any roadway portion of the Duke Loop.”

Trask says that “3 or 4 trustees will likely say no to the elevated design on Erwin Road no matter what.”

Trask says that “it’s difficult for Duke to celebrate something they don’t want.”

Neither Vibration nor EMI were mentioned during this meeting.

November 26, 2018

This was the first one-on-one meeting between John Tallmadge and Tallman Trask.

“Received information about the National Institutes of Health requirements for building security. GoTriangle is working with our design consultant to review our projected proximity during construction.” This was the first time we had received the requested information regarding the NIH requirements.

“Noise and vibration - Dr. Trask want to understand how we will address it during construction, particularly related to the construction of the aerial structure. We will address this, but may not need a separate meeting for this issue. Regarding the Center for Documentary Studies, that is an independent non-profit and issues about noise and vibration at their facility should be addressed directly with them.”

“EMI-sensitive equipment – We will provide Dr. Trask with the list of buildings with EMI potential impacts, and information about how far from the train that there could be impacts to equipment, and what types of materials that EMI can penetrate. In response, Dr. Trask will provide us with the information that we need about the location of EMI-sensitive equipment.”

“Dr. Trask said that the alignment shift that would push Erwin Road north is not worth the cost for the 20 feet of trees saved. He was interested in whether the sidewalk was still in the design between Cameron and Towerview.”

“I indicated that we were still requesting Duke to relocate the transit operations and other equipment/operations currently at Duke’s property on Buchanan without compensation from GoTriangle. Dr. Trask said that was the plan when they were trying to relocate to the Harris Beverage site (about a \$3 million cost). That didn’t occur, but discussions could be restarted. If Duke has to build a new facility, that will be more expensive and have to go before Duke’s Board. We also discussed GoTriangle’s desired timing for the relocation to occur before the middle of 2020. Again, Dr. Trask said this was reasonable if Duke is able to move into an existing facility, but a challenge if a new facility needs to be built.”

“We discussed our desire for Dr. Trask to bring the property donation agreement forward for consideration at the Duke Board meeting this Friday, as a demonstrable sign to Durham leaders that Duke is serious about working toward an agreement. This would also aid us in our communication with the FTA, and private project sponsors, about the progress we are making in negotiations with Duke. Dr. Trask committed that he would discuss this with President Price and the Board members. He said we should send a current version of the Property Donation Agreement. I sent the draft donation agreement language to Dr. Trask on November 29.”

“I asked if we should send over a revised cooperative agreement with language addressing the issues that Duke has raised. Dr. Trask agreed we should do that, and that he and Duke’s legal counsel will work on it with us. GoTriangle will send a draft cooperative agreement to Dr. Trask.”

December 12, 2018

Duke Attendees: Tallman Trask, John Noonan, Paul Manning, Floyd Williams

Duke noted that the “Light rail project will need to include a crash wall or fence (if possible to identify metal crashworthy fence) if removing trees within 100’” of the Global Health Research Building.

“Duke is assembling a list of locations with vibration and EMI-sensitive equipment. Paul Manning noted that the proposed monitoring system will require an alarm system to stop work if vibration tolerances are exceeded. [GoTriangle’s Consultant] Bryan confirmed this will be included. Paul noted that they have had to mitigate vibration in sensitive areas for other projects by drilling a series of holes between the excavation and the MRI machines to minimize transmission of vibration. It is possible to mitigate but requires a lot of coordination. Bryan asked for clarity on vibration thresholds. Dr. Trask said there are

buildings where the threshold is zero. Dr. Trask is assembling information on sensitive equipment. Paul Manning noted that they hit fractured rock by the Eye Care Center Loop and the NE corner of the Research Drive parking garage.”

“Dr. Trask explained that their worst case scenario is that vibration affects sensitive operations like those in the Eye Care Center. Duke will require indemnification from GoTriangle during construction. John suggested attorneys get together to discuss this request.”

“Dr. Trask is gathering locations of sensitive equipment/facilities. The order of magnitude is in the hundreds. EMI is a concern during construction as well. Some MRIs operate 24/7 so construction can’t be coordinated when MRIs are not in use (i.e. CAT Scans in hospital). This information will not be available within a week but soon.”

“GHRB and two buildings behind it have animals.”

“Dr. Trask strongly believes the light rail alignment should be elevated over Cameron Boulevard, or designed for future elevation. They don’t believe the analysis that shows traffic won’t be worsened because they drive through this intersection.”

“Duke does not have a shot at moving the bus facility by 2020 as written in the cooperative agreement. They made an offer on a new location that was not accepted. There are no other good locations currently identified. It will also take a year to permit and a year to build. [GoTriangle’s Consultants] Doug and Bryan said this date can be revisited in the schedule and likely delayed.”

“Summary of potential ‘showstoppers’ that Duke needs to have addressed before agreeing to a donation:

- a. Substantial interruption to research by vibration, EMI during construction and operation
- b. Indemnification
- c. Identify locations of utilities outside of public right-of-way”

December 14, 2018

Duke Attendees: Greg Warwick, Mark Hough, Floyd Williams

“Greg Warwick provided his feedback on the elevated alignment. He received the renderings in advance of the meeting. Greg said he was the medical center architect for 15 years. He now works for the university and not the medical center. They worked very hard over 15 years to improve the medical center. They made progress. Mostly internal – quads and buildings to create places, greenways. The progress on Erwin Road was harder fought and less robust. They made a little progress on Erwin Road to make it friendlier for people. Children’s hospital has glass facing the road. Eye Center faces the road and has an arcade. The elevated light rail alignment design negates all the work they’ve done on Erwin Road. As an 18-year advisor to Duke on architecture and planning, he believes that the elevated design is negative and would set Duke back in terms of making this a people-friendly place.”

“Dave described that the previous design was at grade. Duke leadership and VA leadership both indicated a preference for the elevated alignment. Floyd asked if there was a rendering a year ago when the decision was made to go elevated. Dave responded that there were renderings looking down Fulton Street and along Erwin Road seen by Duke leadership when they said the alignment should be elevated.”

December 19, 2018

Duke Attendees: Tallman Trask, John Noonan, Paul Manning, Floyd Williams

Regarding vibration, "Dr. Trask believes we can't get to an acceptable solution. Time restrictions won't solve it. Ophthalmologist surgeons and brain surgeons are the most concerned. This returns to the indemnification request. History of public indemnification is not good."

"John asked if they hold their construction projects to no increase in vibration? Dr. Trask responded that they've tried to but have had to make exceptions but only for an hour at a time, not for months."

"Vibratory rollers have been out there before. How do you deal with that? Paul responded that it's scheduled with the hospital. John asked why that isn't comparable. Bed tower had contractual obligation for the contractor to shut down at a moment's notice. John asked for that language."

"How do they deal with NCDOT work on Erwin Road?

- i. They've had to shut them down.
- ii. Can't control NCDOT."

Regarding EMI, "The task is not only identifying and shielding current devices. They also want to consider future purchases and restrictions. Duke builds experimental devices. Need to understand exactly what the field looks like and where it goes to be comfortable it's not restricting the future for decades. GoTriangle will resend the EMI report. Dave can coordinate a conference call with the author if needed."

January 11, 2019

Duke Attendees: Tallman Trask, Paul Manning, John Noonan, Floyd Williams

"Dave described approach that GoTriangle intends to use to monitor vibration. As work enters Erwin Road and gets close to medical facilities, contractor will observe and monitor propagation of vibration. Contractor will put into place mitigation as necessary as work proceeds. Dr. Trask is worried that as the work approaches the hospital, vibration will get worse and worse. There will be no solution to mitigate vibration to acceptable levels except to stop the whole project. Dave described that specs can require preparation for a stop order if needed for something going on in the hospital. John T recommended the language cover mutually agreeable thresholds. Dr. Trask noted the problem of figuring out realistically what those thresholds are. Highly sensitive laser eye surgery occurs 12 feet from the proposed widening. Similarly sensitive heart and brain surgery is occurring. (Note: closest proximity of Eye Center to proposed curb line is 19'). Per Dr. Trask, problem is people don't often run trains in front of Trauma 1 centers. Dr. Trask is talking to doctors. When you ask them how much vibration they can sustain, they say none. No vibration isn't realistic. Dr. Trask suggested GoTriangle find similar soils and build one pier and monitor vibration around the pier construction. He wasn't ready to propose this officially. This approach would demonstrate means and methods and resulting impacts."

"Duke is working to identify their EMI tolerance. They are considering future devices as well as existing devices. They don't want to be constrained when locating future devices. Duke staff have read the study. Three electrical engineering faculty are reviewing it. As best they can tell, consultant who did the report

was the same one who did the report in Minneapolis and Seattle. Both had ongoing EMI issues. If they disagree with EMI findings, they will identify a third party to conduct an independent study. Trask says that station location couldn't be in a worse place. Maximum EMI is two trains going in either direction starting from a stop."

"Duke is still identifying locations of equipment and sites of sensitive equipment."

"Dr. Trask is not particularly concerned about noise of operations."

"Dr. Trask said there's nothing in agreement we can't figure out except for one item: indemnification. Take out the first 8 words and the language may work. He doesn't know if legally GoT can indemnify Duke in a way that is binding. Alternative solution is to buy Duke a bond against damage. The number he'll want for that bond will be very large. If the risks are as low as we think, it won't cost much to buy it."

January 16, 2019

Duke Attendees: Tallman Trask, Paul Manning, John Noonan, Floyd Williams

[GoTriangle's Consultant] Bryan Mulqueen provided an update on construction vibration:

"A crew is taking vibration baseline measurements along the RR corridor. They are ready to do that at Duke facilities. The CMC is anxious to know locations and types of equipment Duke has in order to plan out approach for measurements. Bryan would like to know how they manage their own contractors. "

GoTriangle previously received criteria from Monte Brown – 40 Vdb. This is only slightly less than vibration criteria from FTA guidance and can be easily complied with.

"Bryan talked to 3 contractors and laid out the scenario. He asked if they would bid the job with the vibration monitoring and mitigation requirements. All three said yes. Bryan worked on a project with 9' drilled shafts 5' from a jet fuel line at an airport. They have a record of monitoring and demonstrated compliance."

"Duke is not confident Duke North was built correctly. Caused \$100 million lawsuit with contractor. Duke is not just concerned about existing equipment, but also future equipment needs. Bryan noted the need for construction survey for damage assessment pre and post construction. Dr. Trask is working on equipment inventory. Nothing in file identifies vibration or EMI sensitive equipment. Trying to get it sorted by building. Other issue they are concerned about is surgeons themselves being subjected to vibration. Bryan responded that the literature shows the equipment levels the project will be held to are imperceptible to humans. Dr. Trask stated that less than 100' from Erwin Road, doctors operate on hearts using EMI sensitive equipment."

"Dr. Trask will send construction specs for surrounding buildings in next 10 days."